

PATENT COOPERATION TREATY

PCT

10/520907

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/06834	International filing date (day/month/year) 26.06.2003	Priority date (day/month/year) 10.07.2002
International Patent Classification (IPC) or both national classification and IPC A61K7/06		
Applicant UNILEVER N.V. et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 19.11.2003	Date of completion of this report 12.08.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Donovan-Beermann, T Telephone No. +49 89 2399-8213 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/06834**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

Description, Pages

1-3, 5-31	as originally filed
4	received on 27.07.2004 with letter of 22.07.2004

Claims, Numbers

4 (part), 5-14	as originally filed
1-3, 4 (part)	received on 27.07.2004 with letter of 22.07.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/06834**

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-14
	No: Claims	
Inventive step (IS)	Yes: Claims	1-14
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 03/06834

Ad Section V:

The present application relates to hair treatment compositions containing 0.01 to 5% by weight of defined branched amine and/or hydroxy compounds. The preferred compounds are 3,3-dimethylbutan-1-ol or 3,3-dimethyl-1,2-butanediol. The compositions are useful for repair and restoration of hair damage.

The amendments to the claims and description are not wholly allowable according to Art.34(2)(b) PCT in that they extend the scope of the application beyond that of the disclosure as originally filed.

The amendment to claim 1 is based on the application as filed, page 4, lines 24-26. Claim 3 has been amended to recite that the compounds of claim 1 have from 4 to 12 carbon atoms. In the application as filed, this read "3 to 12", which was clearly below the minimum number of carbon atoms defined in the formula of claim 1. However, on reexamining the formula, it can be seen that it has a minimum of 5 carbon atoms, not 4. Therefore the amendment to claim 1 cannot be seen to be based on the application as filed.

WO-A-0000164 discloses 1,2-diols of formula $R^1\text{-CHOH-CH}_2\text{OH}$, wherein R^1 is preferably a straight chain group, in hair care compositions. The diol is preferably used at a level of 7-15% by weight of the composition.

EP-A-922448 describes diols as humectants, eg. for the treatment of damaged hair. The diols $\text{HO-CH}_2\text{-R-CH}_2\text{-OH}$ have terminal OH groups, and thus differ from the diols of the present formula.

EP-A-1005851 discloses cosmetic compositions such as shampoos, containing polyols (see page 3, lines 18-24). These do not fall within the present scope.

The present subject matter is thus acknowledged to be novel and inventive with regard to the prior art, which does not describe said compounds in compositions for such uses (Art.33(2) and 33(3) PCT).

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- 4 -

Preferred hair repair compounds comprise at least two hydroxy groups, amino groups or mixtures thereof and have n as the total number of carbon atoms in the molecule such that each OH or NH_2 is positioned with $0.5n$ or less carbon atoms directly between it and all other OH or NH_2 groups. An example of this would be a molecule having a total of 5 carbon atoms and two hydroxy groups. The hydroxy groups would be 1 or 2 carbon atoms away from each other.

It is preferred if X is substituted with an amino or hydroxy group, particularly a hydroxy group. Especially preferred hair repair compounds are diols.

It is advantageous if the total number of carbon atoms within the hair repair compound is from 3 to 12.

Preferably R_1 , R_2 and R_3 of the hair repair compound are all methyl groups.

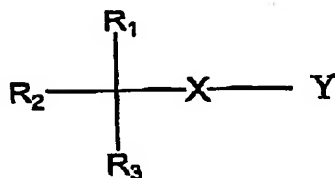
A particularly preferred hair repair compound is according 3,3-dimethyl-1,2-butandiol.

The total amount of the hair repair compound in hair treatment compositions of the invention is generally from 0.001 to 10 wt%, preferably from 0.01 to 5 wt%, more preferably from 0.05 to 2 wt% and yet more preferably from 0.1 to 1 wt%.

CLAIMS

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1. A hair treatment composition comprising 0.01 to 5 wt. % of a molecule having the following formula:



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in which R_1 , R_2 and R_3 are independently selected from a methyl, ethyl, propyl group or mixtures thereof; X is a substituted or un-substituted alkyl or alkenyl chain and Y is an amine or hydroxy group.

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2. A hair treatment composition according to claim 1 in which X is substituted with an amino or hydroxy group.

3. A hair treatment composition according to any preceding claim in which the total number of carbon atoms in the molecule is from 4 to 12.

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4. A hair treatment composition according to any preceding claim in which the molecule comprises at least two hydroxy groups, amino groups or mixtures thereof and where n is the total number of carbon atoms in the molecule such that each OH or NH_2 is positioned with

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/06834

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K7/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, CHEM ABS Data, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00 00164 A (PROCTER & GAMBLE) 6 January 2000 (2000-01-06) the whole document	1
A	EP 0 922 448 A (SHISEIDO CO LTD) 16 June 1999 (1999-06-16) the whole document	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

24 September 2003

Date of mailing of the international search report

09/10/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Donovan-Beermann, T

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/06834

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0000164	A	06-01-2000	AU 4846599	A 17-01-2000
			BR 9911639	A 20-03-2001
			CN 1305365	T 25-07-2001
			EP 1091727	A1 18-04-2001
			JP 2002519313	T 02-07-2002
			WO 0000164	A1 06-01-2000
EP 0922448	A	16-06-1999	JP 11158026	A 15-06-1999
			CN 1225816	A 18-08-1999
			EP 0922448	A2 16-06-1999
			TW 480179	B 21-03-2002
			US 5977188	A 02-11-1999